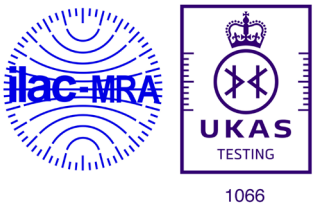
Confidential Report

Our Ref: E-035803/E



Unit 6, Wheel Forge Way, Trafford Park,
Manchester, M17 1EH, UK.
Telephone: +44 (0) 161 876 4211
Email: onestopshop@bttg.co.uk
Website: www.bttg.co.uk

Date: 17 September 2024

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Client:
Oxford Safety Supplies
Olympic House
Collet
Southmead Park
Didcot
Oxon
OX11 7WB

Job Title: Tests on two knitted fabrics

Client's Order No: -

Date of Receipt: 13th June 2024
Date of Test Start: 15th August 2024

Description of Sample(s): Two knitted fabrics, identified as follows, were received for testing:

Navy Outer Knitted Layer: 210gsm
Black Inner Knitted Layer: 110gsm

Work Requested: We were asked to make the following tests as specified in EN ISO 13688:2013 + A11:2021 "Protective Clothing – General Requirements:

pH Value ISO 3071
Determination of the Presence of Aromatic Amines EN 14362-1*

*Not UKAS accredited

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Samples were identified as follows:

Navy Outer Knitted Layer: 210gsm
Black Inner Knitted Layer: 110gsm

Laboratory Work

Where appropriate, the tests were made in Standard Atmosphere (65 ± 4 % relative humidity at 20 ± 2 °C) the sample having been freely and continuously exposed to that atmosphere for at least 24 hours prior to testing. Specimens have been taken from the sample as described in the specified standards.

EN ISO 13688:2013 + A11:2021 (Clause 4.2.c) pH Value ISO 3071: 2020

The pH value was measured according to ISO 3071: 2020 in accordance with EN ISO 13688:2013 + A11:2021. 1 gram of sample is extracted in 0.1mol/l potassium chloride (pH 6.01 at 22.8°C), under gentle agitation, for 2 hours. The pH of the extract is measured. The test is performed in triplicate and an average value reported.

EN ISO 13688:2013 + A11:2021 states that the pH Value for protective clothing material shall be greater than 3.5 and less than 9.5.

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EN ISO 13688: 2013 + A11:2021 (Clause 4.2.d) Azo Colorants EN 14362-1: 2017

The sample was tested according to EN 14362-1: 2017 in accordance with EN ISO 13688:2013 + A11:2021. To test for the presence of azo colorants which may be reduced to release banned aromatic amines, a 1.00 g test specimen was subjected to the test procedure described in the standard, to produce a test solution.

The test solution was analysed by GC/MS and amines detected were quantified by reference to an internal standard method, as described in the standard. If aniline was detected in amounts ≥ 10 mg/kg then EN 14362-3: 2017 was additionally applied to test for 4-aminoazobenzene.

EN ISO 13688:2013 + A11:2021 states; "Azo colorants which release carcinogenic amines listed in EN 14362-1 shall not be detectable by the method in these standards."

The results for all tests are given in the tables on the following pages.

Where required to make a judgement to any pass/fail criteria an estimation of uncertainty of measurement has been taken into account.
Under our policy we have used a non-binary decision rule. See our decision rules policy (http://www.bttg.co.uk/decision-rules-policy) for further information.

Reported by: ..... Mr A Newton, Senior Customer Service Officer

Countersigned by: ..... Mr P Hutchings, Client Support Specialist

Enquiries concerning this report should be addressed to Customer Services.

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RESULTS

Sample Ref: Navy Outer Knitted Layer: 210gsm

EN ISO 13688:2013 + A11:2021

pH Value

Result	Pass/Fail
6.2	Pass

Azo Colorants
There was no evidence of any of the following primary aromatic amines in the sample provided:

4-Aminobiphenyl
Benzidine
2-Naphthylamine
5-nitro-o-toluidine
2,4-Diaminoanisole
3,3'-Dichlorobenzidine
3,3'-Dimethoxybenzidine
4,4'-Methylene-bis-(2-chloroaniline)
o-Toluidine
2,4,5-Trimethylaniline
4-Aminoazobenzene
4,4'-Thiodianiline
4-Chloro-o-toluidine
o-Aminoazotoluene
4-Chloroaniline
4,4'-Diaminodiphenylmethane
3,3'-Dimethylbenzidine
p-Cresidine
4,4'-Oxydianiline
2,4-Toluylendiamine
o-Anisidine (2-Methoxyaniline)
4,4'-methylenedi-o-toluidine

Result	Pass/Fail
Primary aromatic amines listed above not detected	Pass

*Limit of detection for sum of all compounds is 20mg/kg

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RESULTS

Sample Ref: Black Inner Knitted Layer: 110gsm

EN ISO 13688:2013 + A11:2021

pH Value

Result	Pass/Fail
6.1	Pass

Azo Colorants
There was no evidence of any of the following primary aromatic amines in the sample provided:

4-Aminobiphenyl
Benzidine
2-Naphthylamine
5-nitro-o-toluidine
2,4-Diaminoanisole
3,3'-Dichlorobenzidine
3,3'-Dimethoxybenzidine
4,4'-Methylene-bis-(2-chloroaniline)
o-Toluidine
2,4,5-Trimethylaniline
4-Aminoazobenzene
4,4'-Thiodianiline
4-Chloro-o-toluidine
o-Aminoazotoluene
4-Chloroaniline
4,4'-Diaminodiphenylmethane
3,3'-Dimethylbenzidine
p-Cresidine
4,4'-Oxydianiline
2,4-Toluylendiamine
o-Anisidine (2-Methoxyaniline)
4,4'-methylenedi-o-toluidine

Result	Pass/Fail
Primary aromatic amines listed above not detected	Pass

*Limit of detection for sum of all compounds is 20mg/kg

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Annex

Summary of Uncertainty Budgets

PH Value	± 0.08 pH units
Azo Colorants	Output uncertainty of 0